Nutria (*Myocastor coypus*) in Skagit County, WA: Background, Trapping Results, and Recommendations

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Distribution

The nutria (*Myocastor coypus*) is an invasive, semi-aquatic rodent native to the South American countries of Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay (Figure 1). It was introduced almost worldwide in the early 1900's for fur farming and, in some areas, weed control. Many captive nutria were released when the nutria fur market collapsed in the late 1940s. Accidental and intentional releases of nutria have led to the establishment of nutria populations in 15 states nationwide (Bounds et al. 2001).

Figure 1. Native range of nutria in South America (Source: USGS National Wetlands Research Center).

Nutria were imported into Washington State in the late 1930s and early 1940s for fur farms (Larrison 1943). Bill Newby, a Seattle City Light employee raised in Newhalem, remembers nutria being raised along the Skagit River (History Ink 2005):

> "Way back when, when I was just a kid, a fellow had a pen full of nutria, over the bank along the river. Raising nutria, no big deal."

Nutria farms have reportedly occurred in parts of Skagit County including Big Lake as recently as the 1950s. However, feral populations in Skagit County were unknown until recently. In Washington State, established populations exist mainly in lowland areas of Southwest Washington, although there have been records as far north as King County (Ingles 1965; Figure 2). According to local trappers, nutria have not been in King County since the 1970s (Link, Pers. Comm.).

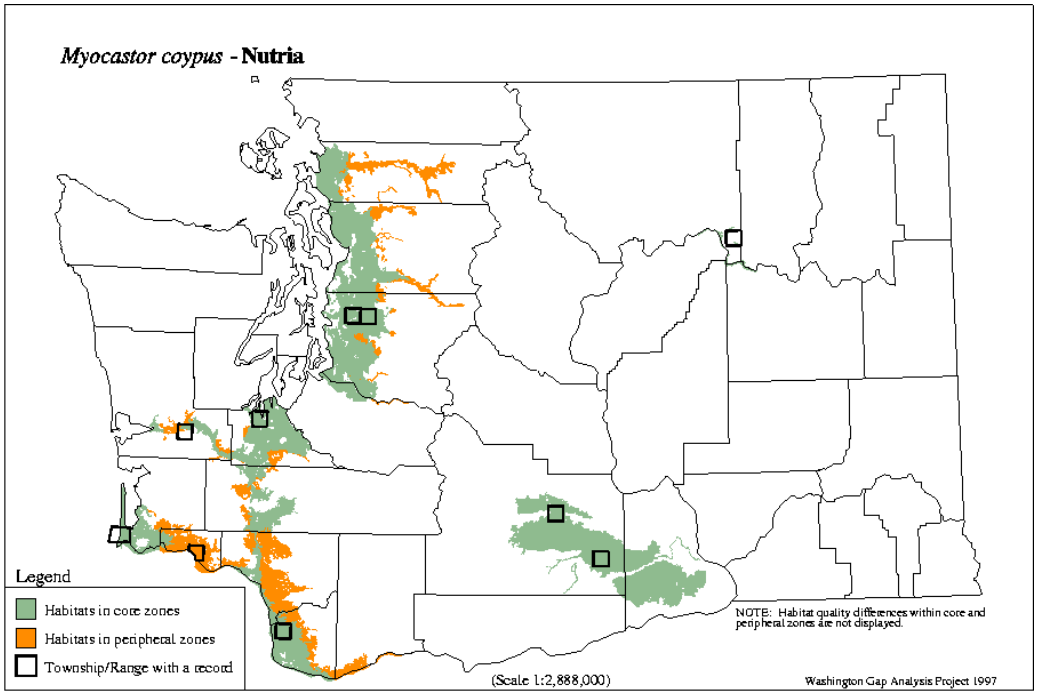

Figure 2. Nutria records and habitat in Washington State (Source: Washington GAP Analysis Project 1997).

Description and Habitat Use

Nutria are large rodents resembling muskrats or beavers. The upperparts range from yellowish brown to dark brown with pale yellow underparts. Nutria have a white chin and muzzle with conspicuous white whiskers. Their large front teeth are yellow-orange to orange-red on the outer surface. Semi-aquatic adaptations include eyes, ears, and nostrils located high on the head, valves in the nostrils and mouth that seal out water, partially webbed hind feet, and, in females, mammary glands located high on the side of the body so that young can nurse while in the water. The slightly haired nutria tail is 13-16 inches long and round, as opposed to the horizontally flattened tail of beavers and the vertically flattened tail of muskrats. Nutria weigh on average 12-15 lbs but may exceed 20 lbs (USFWS 2004). Males are slightly larger than females. Nutria are about 2-feet long, not including the tail, with a highly-arched body and large head.

Nutria usually occur in or adjacent to lakes, marshes, rivers, sloughs, slow-moving streams, drainage canals, and temporarily flooded fields. Although nutria prefer freshwater in their native range, they can occur in both brackish and saltwater marshlands (Nowak 1999). The largest populations of nutria are located along the Gulf Coast in areas with an abundance of emergent aquatic vegetation, small trees, and shrubs, preferably freshwater marshes. Most nutria populations occur at low elevations, but populations do exist at elevations above 3000 feet in the Andes of South America (Greer 1966).

Nutria live in burrows and in dense vegetation. They also use large mats of vegetation as a feeding, grooming, and resting platforms. Their burrows range in size from tunnels 3 to 18 feet deep to elaborate burrow systems extending up to 150 feet into

the bank (LeBlanc 1994). A single burrow system may have multiple entrances at different levels.

Feeding almost entirely on vegetation, nutria eat about 25% of their body weight daily (Christen 1978). They are opportunistic feeders with an extremely varied diet. Nutria prefer soft, succulent parts near the bases of plants but will consume a variety of plant material (Bounds 2000). In marsh habitats, nutria forage directly on the vegetative root mat, which can result in an "eat out", an area devoid of vegetation as soil is washed away. Nutria also feed on crops, lawn grasses, and ornamental plants adjacent to aquatic habitats.

Reproduction and Social Behavior

Nutria are highly prolific and can breed year round. Gestation lasts 127 to 139 days and litter size is normally 3 to 6 young but can be as many as 12 (Atwood 1950, Federspiel 1941, Gosling 1981, Weir 1974). Females are ready to breed within a day or two following birth and can have up to 3 litters per year. In Maryland, reproductive output was estimated at 8.1 young per female per year (Willner et al. 1979). Young are born fully furred and active and are able to swim and eat soon after birth. Nutria young are weaned at 5 to 8 weeks of age and reach sexual maturity at 4 to 8 months of age (Gosling 1980).

Although nutria live in groups, males are territorial and will exclude other males from their territories. A group of nutria ranges in size from 2 to over 13 individuals and is usually composed of one to several adult females, their young, and one adult male (Erlich 1966, Gosling 1977, Warkentin 1968). As young males mature, they are forced out of the group by the resident adult male and are often solitary as a result.

Home Range and Dispersal

Males typically have larger home ranges than females. In France, home range size was estimated at about 6 acres for females and 14 acres for males (Doncaster and Micol 1989). Home range size in Louisiana was estimated at about 32 acres (LeBlanc 1994). Daily movements are usually restricted to within about 150 feet of the burrow entrance (Adams 1956). Nutria have a high potential for long-distance dispersal due to their ability to traverse both land and water, but tend to stay in the vicinity where they were born for their entire lives (Aliev 1968).

Possible Limiting Factors

Weather can be an important limiting factor for nutria. Severe or prolonged cold temperatures can result in large die-offs of nutria, while milder cold weather can reduce birth rates. In Louisiana, a severe freeze event, in which the temperature dropped to 12° F, killed perhaps millions of nutria and left many without tails and feet (Lowery 1974). Likewise, severe storms and prolonged flooding can also reduce local nutria populations (Baroch and Hafner 2002).

Major predators of nutria include caymans in South America and alligators in North America (Aliev 1966, Wolfe et al. 1987). There are no major predators of adult

nutria in Washington State. Birds of prey, coyotes, and domestic dogs may eat young nutria and smaller adults. It is highly unlikely that predation plays a major role in limiting nutria populations in Skagit County.

Nutria and muskrats have similar ecological needs and often co-occur. However, nutria are behaviorally dominant over muskrats and sometimes take over their nests and resting platforms (Baroch and Hafner 2002, Lowery 1974). Competition with muskrats and other semi-aquatic mammals is probably not a limiting factor for nutria.

Nutria Trapping Effort in Skagit County

In late March 2005, the possible presence of nutria at DeBay's Slough in Skagit County was brought to attention of WDFW personnel. A person who frequents the slough noticed a strange animal and photographed it (Figure 3). Mike Davison, District Wildlife Biologist for WDFW, confirmed the presence of nutria at DeBay's Slough in April 2005. Trapping records from 1972-2004 indicate there were no nutria harvested in Skagit County during that time frame. However, a nutria was reportedly trapped 7 miles away from DeBay's Slough in Walker Valley just east of Big Lake in March 2005. The animal was live-trapped by local nuisance wildlife cooperators who were responding to a beaver damage complaint and was identified as a nutria by a fur buyer in Everett.

Figure 3. First evidence of nutria at DeBay's Slough.

Following confirmation of nutria, WDFW issued a 90-day trapping permit to USDA Wildlife Services to set traps in Walker Valley and DeBay's Slough beginning in June. On June 6, WDFW disseminated a news release announcing the trapping project, and on June 15, an article on nutria in Skagit County appeared in the Skagit Valley Herald. Three Seattle television networks as well as radio soon picked up the story. Shortly after learning about the nutria problem, the public began leaving messages on a nutria hotline established by WDFW. WDFW personnel followed up on leads from the public and worked with Wildlife Services in identifying additional areas to set live traps to confirm presence or absence of nutria.

The first traps were set on June 13 in DeBay's Slough and Walker Valley where nutria had previously been confirmed. On June 16, a male nutria was caught in DeBay's Slough (Table 1). Trapping success was limited at first, but increased in July, possibly due to decreasing forage availability. It slowed down again in August, presumably as nutria populations in the trapping areas declined. The trapper received permission from neighboring landowners to set traps in vicinity of DeBay's Slough, but only found evidence of nutria in two other locations: Mud Lake and Clear Lake (see attached map). An adult male nutria was caught at Mud Lake, and a food plot at Clear Lake showed nutria sign but no nutria were trapped there. The trapper found no sign of nutria in Walker Valley, despite intensive trapping there. The trapping period ended August 19, although bait stations continued to be checked until the end of August. The trapper worked for a total of 572 hours from June 1 to Sept 1, with 483 hours spent trapping, and the remainder of the time spent on other work such as running bait stations and following up on leads.

Date Trapped	Location Trapped	Sex	Weight (lbs)
06/16/2005	DeBay's East	male	10.1
06/27/2005	DeBay's East	male	7
07/01/2005	DeBay's East	male	18.9
07/13/2005	DeBay's East	female	12.1
07/16/2005	DeBay's East	male	8
07/27/2005	DeBay's West	female	8.4
07/28/2005	DeBay's West	female	7.7
07/28/2005	DeBay's West	female	8.8
07/29/2005	DeBay's West	male	14.1
07/29/2005	DeBay's West	female	7.5
07/29/2005	DeBay's West	female	6.6
07/30/2005	DeBay's West	male	7.3
08/17/2005	Mud Lake	male	13.4

Table 1. Nutria trapped during the June-August trapping period in Skagit County.

WDFW personnel measured, weighed, and sexed all trapped nutria. Nutria can be placed into rough age categories (immature, subadult, adult) based on hind foot length and weight (Adams 1956, Brown 1975). We determined that both adult (> 5 months) and subadult (3-5 months) age classes were trapped. Furthermore, the trapper observed a 4-5 inch long immature (< 3 months old) nutria swimming in DeBay's Slough. Therefore, it appears that we are dealing with at least three age classes. One adult male was caught in each of the 3 successful trapping areas (DeBay's East, DeBay's West, Mud Lake), and one adult female was trapped at DeBay's East. The remaining 9 animals (4 males, 5 females) were considered subadults based on their measurements.

The primary goal of our initial trapping effort was to remove illegally introduced animals from known locations and the secondary goal was to gather information on nutria distribution in Skagit County from the public and from live trapping. This was an emergency response aimed at eradicating a handful of nutria before they became established in Skagit County. Our trapping results show that nutria have already established family groups in several locations and are successfully reproducing. We believe that the nutria problem will require a more widespread and intense effort to successfully remove nutria from Skagit County.

The feeding and digging habits of nutria pose a significant risk to public safety, the agricultural and natural resource-based economy, native fish and wildlife, and wetland habitat in Skagit County. The three main types of damage caused by nutria are: damaging levees and banks by burrowing, depredation on agricultural crops, and overutilization of marsh vegetation (Kinler et al. 1987). Nutria burrows can undermine roadbeds, stream banks, dams, and dikes, which may collapse when the soil is saturated or when subjected to the weight of heavy objects on the surface (such as vehicles, farm machinery, or grazing livestock) (LeBlanc 1994). Nutria will consume a variety of crops including corn, sugar and table beets, alfalfa, wheat, barley, oats, and various melons (Ingles 1965, Oregon Department of Fish and Wildlife). Furthermore, nutria can damage home gardens and will girdle fruit, nut, deciduous and coniferous forest trees and ornamental shrubs. At high densities, nutria can damage stands of desirable wetland vegetation used by native wildlife and their aggressive behavior can eliminate or greatly reduce muskrat populations where nutria have become established (Bounds 2000, Evans 1970). People with an interest in the elimination of nutria from Skagit County include dike and drainage districts, agricultural groups, fish and wildlife organizations and enthusiasts, the timber industry, and the general public.

Acknowledgments

We would like to thank Brad Buesher, USDA Wildlife Services trapper, for his dedication and hard work on this project. He continually looked for new and innovative ways to find nutria. The entire staff of the Poulsbo District Wildlife Services office demonstrated professionalism and was a pleasure to work with. We are grateful for the support of the Puget Sound Action Team, who helped fund this project. WDFW also provided a significant portion of the funding. We thank the landowners for their cooperation in allowing us to trap on their land. We truly appreciate the support and assistance of the local community in providing us with sightings and potential leads for nutria presence.

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Personal Communications

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WDFW RECOMMENDATIONS – NUTRIA ISSUE IN SKAGIT COUNTY

Priority	Recommendation
1	Re-establish USDA APHIS Wildlife Services trapping program beginning November, 2005 – February, 2006**.** Includes trapping of geographical areas currently known to support nutria and continues the effort to further define the distribution of nutria in other primary habitat areas in Skagit County.
1	Inspect Judy Reservoir water control structure for nutria activity. Nutria dogs would be ideal for this task (see below) but manual inspection is practicable and adequate.
2	Contract with USDA APHIS Wildlife Services for hiring of nutria detection dog and handler for inspection of all primary nutria habitat areas and dikes in Skagit County (see attached Demonstration Proposal). This option appears to be the most efficient technique for evaluating presence and distribution of nutria in low population habitats. This technique will require some adaptation to local field conditions but it is possible to at least confirm the presence or absence of nutria as well as potentially locate existing den locations should they exist. Newly discovered nutria population areas would then need to be actively trapped.
3	Complete a dike risk assessment of all primary and secondary dikes in Skagit County. This evaluation should be based upon known habitat requirements and behavioral patterns of nutria.
4	Evaluate radio telemetry technique as a practicable method to locate nutria dens (compromised dikes).

Demonstration Project Proposal: Use of nutria detection dogs to survey and control suspected nutria populations in Skagit County, Washington.

Background: The USDA APHIS Wildlife Services program has been using trained detection dogs to locate and capture/euthanize nutria as part of an integrated wildlife damage control plan in a regional eradication project on Maryland's Chesapeake Bay.

Justification: Dogs are highly efficient at detecting and isolating nutria in low density populations. This results in reduced search time and increased likelihood of ascertaining the presence of nutria.

Proposal: WA WS program has requested MD WS to provide a cost estimate for one to two wildlife specialists to travel with nutria detection dogs to Skagit County, WA for a demonstration project on the use of nutria detection dogs.

Budget: Costs are estimated below for one and two specialists with dogs for one or two weeks. Costs are based on the following:

- Hourly Rate for Wildlife Specialist (GS 6,4) - $16.83
- Per Diem Meals - $36/day
- Lodging - $60/day

	One Week (7 Days/56 Hours)		Two Weeks(12 Days/96 Hours)	
	1 Specialist	2 Specialists	1 Specialist	2 Specialists
Salary*	$941.92	$1883.84	$1883.84	$3767.68
Airfare	$525	$525	$525	$525
Dog Transport	$160	$160	$160	$160
Meals	$252	$504	$432	$864
Lodging	$420	$840	$720	$1440
Misc. Expenses	$200	$200	$200	$200
Totals	$2498.92	$4112.84	$3920.84	$6956.68

Scheduling/Timing: While dogs are effective year round, the most productive times are after the vegetation dies off in the fall through early spring. December through February are important months for the Maryland eradication effort so it will be difficult to provide staff for extended periods during that time.

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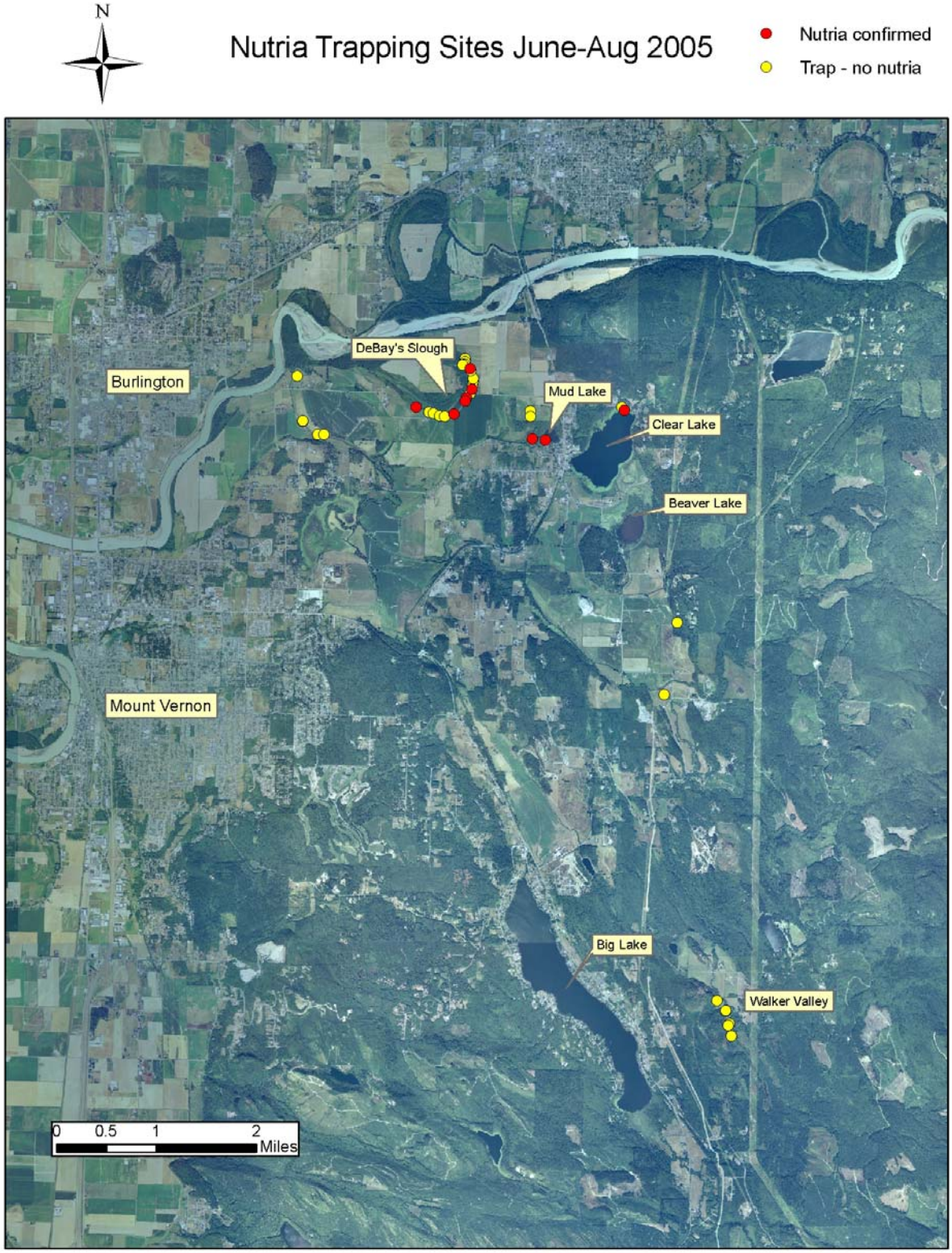
N
Nutria Trapping Sites June-Aug 2005
Nutria confirmed
Trap - no nutria
DeBay's Slough
Burlington
Mud Lake
Clear Lake
Beaver Lake
Mount Vernon
Big Lake
Walker Valley
0 0.5 1 2
Miles